

PATENT

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on October 3, 2000.

By: Rona L. Meleanek  
Rona L. Meleanek

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Wallace T.Y. Tang

Serial No.: 07/996,817

Examiner: H. Pham

Filed: December 28, 1992

Art Unit: 2505

For: **IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS  
FOR ENDPOINT DETECTION OF THIN FILMS DURING  
CHEMICAL/MECHANICAL POLISHING PLANARIZATION**

Assistant Commissioner for Patents  
Washington, D.C. 20231

**REVOCATION AND NEW APPOINTMENT OF POWER OF ATTORNEY AND  
CHANGE OF CORRESPONDENCE ADDRESS**

The undersigned, being sole owner of total interest of this application, hereby revokes all powers of attorney previously granted in this application and hereby appoints

|                      |        |                    |        |
|----------------------|--------|--------------------|--------|
| Joseph Bach          | 37,771 | Robert W. Mulcahy  | 25,436 |
| Sarah Brashears      | 37,087 | Peter J. Sgarbossa | 25,610 |
| Lawrence Edelman     | 25,226 | Donald Verplancken | 33,217 |
| Michael Einschlag    | 29,301 | James C. Wilson    | 35,412 |
| Raymond Kam-On Kwong | 37,165 | David J. Goren     | 34,609 |
| Frederick H. Rabin   | 24,488 | William J. Egan    | 28,411 |
| William E. Booth     | 28,933 | Eric L. Prah       | 32,590 |

as attorneys with full power of substitution and revocation to prosecute this application and to transact all business in the United States Patent and Trademark Office connected

therewith, and hereby request that all correspondence regarding this application be sent to:

Applied Materials, Incorporated  
Attn: Patent Group  
2881 Scott Blvd., M/S 2061  
Santa Clara, CA 95050  
Tel: (408) 235-6536  
Facsimile: (408) 986-3090

Respectfully submitted,

Signature: 

Printed Name: Joseph J. Sweeney

Title: Group Vice President, Legal Affairs  
& Intellectual Property

Date: Sept. 26, 2000

09909756-071001

**CERTIFICATE UNDER 37 CFR 3.73(b)**

**Applicant: Wallace T.Y. Tang**

**Application No./Patent No.: 07/996,817**

**For: IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS FOR  
ENDPOINT DETECTION OF THIN FILMS DURING CHEMICAL/MECHANICAL  
POLISHING PLANARIZATION**

**APPLIED MATERIALS, INC., a corporation,**

certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel , Frame , or for which a copy thereof is attached.

OR

B. ☐ A chain of title from the inventor(s) of the patent application identified above, to the current assignee as shown below:

1. From: To:  
The document was recorded in the Patent and Trademark Office at Reel , Frame , or for which a copy thereof is attached.
2. From: To:  
The document was recorded in the Patent and Trademark Office at Reel , Frame , or for which a copy thereof is attached.
3. From: To:  
The document was recorded in the Patent and Trademark Office at Reel , Frame , or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☒ Copies of assignments or other documents in the chain of title are attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

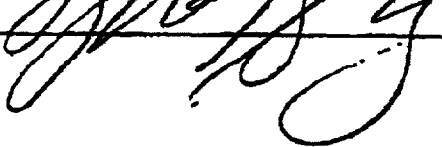
The undersigned (whose title is supplied below) is empowered to sign this certificate on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Sept 26, 2000

Name: Joseph J. Sweeney

Title: Group Vice President, Legal Affairs & Intellectual Property

Signature: 

09009755-071901

## PATENT ASSIGNMENT

WHEREAS, WALLACE T. Y. TANG, having a residence at P.O. Box 4408, 5 Deerwood Trail, Warren, NJ 07059 (hereinafter referred to as "Assignor") owns right, title, and interest in and to U.S. Patent Application Number 07/996,817, filed on December 28, 1992, entitled IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS FOR ENDPOINT DETECTION OF THIN FILMS DURING CHEMICAL/MECHANICAL POLISHING PLANARIZATION (hereinafter referred to as "Patent Application"); and

WHEREAS, APPLIED MATERIALS, INC., having offices at P.O. Box 450A, Santa Clara, CA 95052 (hereinafter referred to as "Assignee"), desires to acquire Assignor's entire right, title, and interest in and to said Patent Application, and in and to the inventions disclosed in said Patent Application, and to the Future Patents (as hereinafter defined).

NOW, THEREFORE, for and in consideration of One Dollar (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor does hereby sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, Assignor's full right, title, and interest in and to said Patent Application, and to all future patents which may be granted therefor throughout the world, and all division, reissues, substitutions, continuations, continuations-in-part and extensions thereof (collectively, "Future Patents"), together with all claims, causes of action and damages for past infringement, if any, of said Patent Application and Future Patents; and Assignor hereby authorizes and requests the United States Patent and Trademark Office and other patent offices throughout the world to issue all Future Patents resulting therefrom insofar as Assignor's interest is concerned, to the said Assignee of Assignor's entire right, title, and interest.

Assignor also hereby sells and assigns to Assignee, its successors, assigns and legal representatives Assignor's full right, title, and interest to inventions disclosed in said Patent Application and Future Patents throughout the world, including the right to file applications and obtain patents, utility models, industrial models and designs for said inventions in Assignee's own name throughout the world including all rights of priority, all rights to publish cautionary notices reserving ownership of said inventions and all rights to register said inventions in appropriate registries; and Assignor further agrees to execute any and all powers of attorney, applications, assignments, declarations, affidavits, and any other papers in connection therewith reasonably necessary to perfect such right, title, and interest in Assignee, its successors, assigns and legal representatives.

Assignor hereby further agrees that Assignor will communicate to said Assignee, or to its successors, assigns and legal representatives, any facts known to Assignor respecting any improvements, and, at the expense of said Assignee, will testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, continuation-in-part, reissue and substitute applications, make all lawful oaths, and exert reasonable efforts to vest title in said Assignee and to aid said Assignee, its successors, assigns and legal representatives in obtaining and enforcing proper protection for said Patent Application and Future Patents in such countries as Assignee may elect.

IN WITNESS WHEREOF, Assignor has caused this instrument to be executed effective July 31, 2000.

By:   
Name: Wallace T. Y. Tang

UTILITY PATE  
OR DESIGN  
SOLE OR JOINT

WEGNER, CANTOR, MUELLER & PLAYER  
UNITED STATES LETTERS PATENT  
DECLARATION AND POWER OF ATTORNEY

ATTORNEY'S DOCKET NO

P-2921-23619

As a below named inventor, I declare that I believe I am the original, first and sole inventor if only one name is listed at item 201 below, or a joint inventor if plural names are listed below at items 201 et. seq. of subject matter which is claimed and for which a patent is sought for

the invention entitled: **IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS FOR ENDROIN DETECTION OF THIN FILMS DURING CHEMICAL/MECHANICAL** which is described and claimed in:  
☐ the attached specification ☒ the specification in application Serial No. 07/996,817 filed December 28, 1992  
(for declaration not accompanying application papers)

and (if applicable) amended on \_\_\_\_\_  
☐ International (PCT) application No. \_\_\_\_\_ filed \_\_\_\_\_ and as amended on \_\_\_\_\_ (if any)

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 I hereby claim the benefit of priority, under Title 35, United States Code, §119, of any foreign application(s) for patent or inventor's certificate having a filing date before that of the application for which priority is claimed.

I hereby claim the benefit, under Title 35, United States Code, §120, of any U.S. application(s) listed in item 105 below. If this application is a continuation-in-part, insofar as the subject matter of any of the claims thereof is not disclosed in the prior U.S. application(s) identified in item 105 below in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior U.S. application(s) identified in item 105 below and the national or PCT international filing date of this application.

| FOREIGN APPLICATION(S), IF ANY, FILED WITHIN 12 (6 if a Design) MONTHS PRIOR TO THE FILING DATE OF THIS APPLICATION THE PRIORITY OF WHICH WHERE PERMITTED IS HEREBY CLAIMED UNDER 35 U.S.C. §119 |         |                    |                                      |                  |
|--|---------|--------------------|--------------------------------------|------------------|
|  | COUNTRY | APPLICATION NUMBER | DATE OF FILING<br>(day, month, year) | PRIORITY CLAIMED |
|  |         |                    |                                      | YES NO           |
| 105  |         |                    |                                      |                  |

|     |  |  |           |       |
|-----|--|--|-----------|-------|
| 106 | THIS APPLICATION IS A:<br><input type="checkbox"/> CONTINUATION<br><input type="checkbox"/> DIVISION | <input type="checkbox"/> CONTINUATION-IN-PART<br>OF PRIOR U.S. APPLICATION | SERIAL NO | FILED |
|-----|--|--|-----------|-------|

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

HAROLD C. WEGNER  
Registration No. 25,258

HERBERT I. CANTOR  
Registration No. 24,392

HELMUTH A. WEGNER  
Registration No. 17,033

FRANKLIN D. WOLFFE  
Registration No. 19,724

DOUGLAS P. MUELLER  
Registration No. 30,300

WILLIAM E. PLAYER  
Registration No. 31,409

|                         |   |   |
|-------------------------|---|---|
| SEND CORRESPONDENCE TO: | WEGNER, CANTOR, MUELLER & PLAYER<br>P.O. Box 18218<br>Washington, D.C. 20036-8218 | DIRECT TELEPHONE CALLS TO<br>202-887-0400 |
|-------------------------|---|---|

Inventor(s) name must include at least one unabbreviated first or middle name.

|     |                       |   |                                |                      |
|-----|-----------------------|---|--------------------------------|----------------------|
| 201 | FULL NAME OF INVENTOR | LAST NAME<br>TANG                                       | FIRST NAME<br>Wallace          | MIDDLE NAME<br>T. Y. |
|     | RESIDENCE CITIZENSHIP | CITY OR OTHER LOCATION<br>Warren                        | STATE OR COUNTRY<br>New Jersey | CITIZENSHIP<br>USA   |
|     | POST OFFICE ADDRESS   | POST OFFICE ADDRESS<br>P. O. Box 4408, 5 Deerwood Trail |                                |                      |
| 202 | FULL NAME OF INVENTOR | LAST NAME   | FIRST NAME                     | MIDDLE NAME          |
|     | RESIDENCE CITIZENSHIP | CITY OR OTHER LOCATION                                  | STATE OR COUNTRY               | CITIZENSHIP          |
|     | POST OFFICE ADDRESS   | POST OFFICE ADDRESS                                     |                                |                      |
| 203 | FULL NAME OF INVENTOR | LAST NAME   | FIRST NAME                     | MIDDLE NAME          |
|     | RESIDENCE CITIZENSHIP | CITY OR OTHER LOCATION                                  | STATE OR COUNTRY               | CITIZENSHIP          |
|     | POST OFFICE ADDRESS   | POST OFFICE ADDRESS                                     |                                |                      |

☐ Fourth (and more) inventors on page 2

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

|                           |                           |                           |
|---------------------------|---------------------------|---------------------------|
| SIGNATURE OF INVENTOR 201 | SIGNATURE OF INVENTOR 202 | SIGNATURE OF INVENTOR 203 |
| DATE<br>2/23/93           | DATE                      | DATE                      |